

$$\textcircled{1} 2, 4, 6, 8, 10, \underline{12}, \underline{14}, \underline{16}$$

add 2, starting @ 2

$$\textcircled{2} 1, 4, 9, 16, 25, \underline{36}, \underline{49}, \underline{64}$$

$\underbrace{\quad}_{+3} \quad \underbrace{\quad}_{+5} \quad \underbrace{\quad}_{+7} \quad \underbrace{\quad}_{+9} \quad \dots$

n^2

$$\textcircled{3} 3, 5, 7, 9, 11, \underline{13}, \underline{15}, \underline{17}$$

add 2, starting @ 3

$$\textcircled{4} -2, 4, -8, 16, \underline{-32}, \underline{64}, \underline{-128}$$

$\times -2$, starting @ -2

$$\textcircled{5} \frac{1}{2}, 1, \frac{3}{2}, 2, \underline{\frac{5}{2}}, \underline{3}, \underline{\frac{7}{2}}$$

$+\frac{1}{2}$, starting @ $\frac{1}{2}$

Unit 8 (ch. 11)

11.1

Domain: input values

Range: output values

* sequence in math

Ex: 6, 9, 12, 15, ...

add 3

Started @ 6

n	1	2	3	4	5	...
a_n	6	9	12	15	18	

$$a_n = 3n + 3$$

output sequence

input

Ex: $\frac{1}{2}, \frac{1}{6}, \frac{1}{12}, \frac{1}{20}, \dots$

$$a_n = \frac{1}{(n+1)n}$$

n	1	2	3	4	5	6	...	14	...	n
a_n	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{1}{12}$	$\frac{1}{20}$	$\frac{1}{30}$	$\frac{1}{42}$		$\frac{1}{210}$		$\frac{1}{(n+1)n}$

$$\textcircled{1} a_n = -4n + 3$$

$$a_1 = -1$$

$$a_4 = -13$$

$$a_2 = -5$$

$$a_5 = -17$$

$$a_3 = -9$$

$$a_{12} = -45$$

$$\textcircled{2} a_n = (-1)^{(n+1)}$$

$$a_1 = 1$$

$$a_4 = -1$$

$$a_2 = -1$$

$$a_5 = 1$$

$$a_3 = 1$$

$$a_{12} = -1$$

$$\textcircled{3} a_n = 5n - 3$$

$$a_1 = 2$$

$$a_2 = 7$$

$$a_3 = 12$$

$$a_4 = 17$$

$$a_5 = 22$$

$$a_{12} = 57$$

2, 7, 12, 17, 22, 57, ...

$$\textcircled{4} a_n = n - 2$$

$$a_1 = -1$$

$$a_2 = 0$$

$$a_3 = 1$$

$$a_4 = 2$$

$$a_5 = 3$$

$$a_{12} = 10$$

$$\textcircled{5} a_n = 2^n$$

$$a_1 = 2$$

$$a_2 = 4$$

$$a_3 = 8$$

$$a_4 = 16$$

$$a_5 = 32$$

$$a_{12} = 4096$$

$$\textcircled{6} a_n = \frac{(-1)^n}{n}$$

$$a_1 = -1$$

$$a_2 = \frac{1}{2}$$

$$a_3 = -\frac{1}{3}$$

$$a_4 = \frac{1}{4}$$

$$a_5 = -\frac{1}{5}$$

$$a_{12} = \frac{1}{12}$$

Arithmetic Seq.

+ / -

$$\text{Seq: } a_n = a_1 + d(n-1)$$

~~Sum~~

add/subt.
each time

Geometric

x / ÷

$$\text{Seq: } a_n = a_1 \cdot r^{(n-1)}$$

~~Sum~~

mult/div.
each time

1, 4, 9, 16, 25

$1^2, 2^2, 3^2, \dots$

$$a_n = 1 \cdot n^2$$

① 1, 2, 4, 8, 16

$\times 2$ geom.

$$a_1 = 1$$

$$a_n = a_1 \cdot r^{(n-1)}$$

$$a_n = 1 \cdot \underset{2^{n-1}}{2^{(n-1)}}$$

② 2, 4, 6, 8, 10

$+2$ arith.

$$a_1 = 2$$

$$a_n = a_1 + d(n-1)$$

$$a_n = 2 + 2(n-1)$$

$$\textcircled{3} + \frac{1}{2}$$

$$a_n = a_1 + d(n-1)$$

$$a_n = \frac{1}{2} + \frac{1}{2}(n-1)$$

$$\textcircled{4} - 1$$

$$a_n = a_1 + d(n-1)$$

$$a_n = 4 - 1(n-1)$$

Arith: $a_n = a_1 + d(n-1)$

Geom: $a_n = a_1 \cdot r^{(n-1)}$

Practice/HW (will be collected):

p. 655 # 14, 18, 25, 29

p. 670 # 11, 12, 14, 15